

acute traumatic intracranial haematoma at all ages. Children with head injury can be managed by guidelines similar to those already used in adults, but to improve outcome even more patients should be investigated by computed tomography soon after injury. We therefore recommend that a patient with head injury who has either a persisting alteration in conscious level or a skull fracture should be investigated by computed tomography. The figure shows how this might be achieved through coordinated efforts by neurosurgical units and general hospitals with facilities for computed tomography. The box shows guidelines proposed as a basis for formulating new, locally agreed criteria for managing children and adults with head injuries.

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Comparison of visual and radiographic detection of bony changes at the knee joint

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Osteoarthritis is often reported in human bones recovered from archaeological sites. The diagnosis is usually based on the presence of osteophytes with or without surface pitting, eburnation, or change of contour of the bony articular surface.¹ Clinicians diagnose osteoarthritis largely on the basis of changes visible on radiography, including narrowing at the joint space, osteophytes, subchondral eburnation, and cysts.² The sensitivity of radiography in detecting pathological changes in bone has not been examined but is important in several disciplines. We investigated this by examining 24 knee joints visually and radiographically for changes compatible with osteoarthritis.

Methods and results

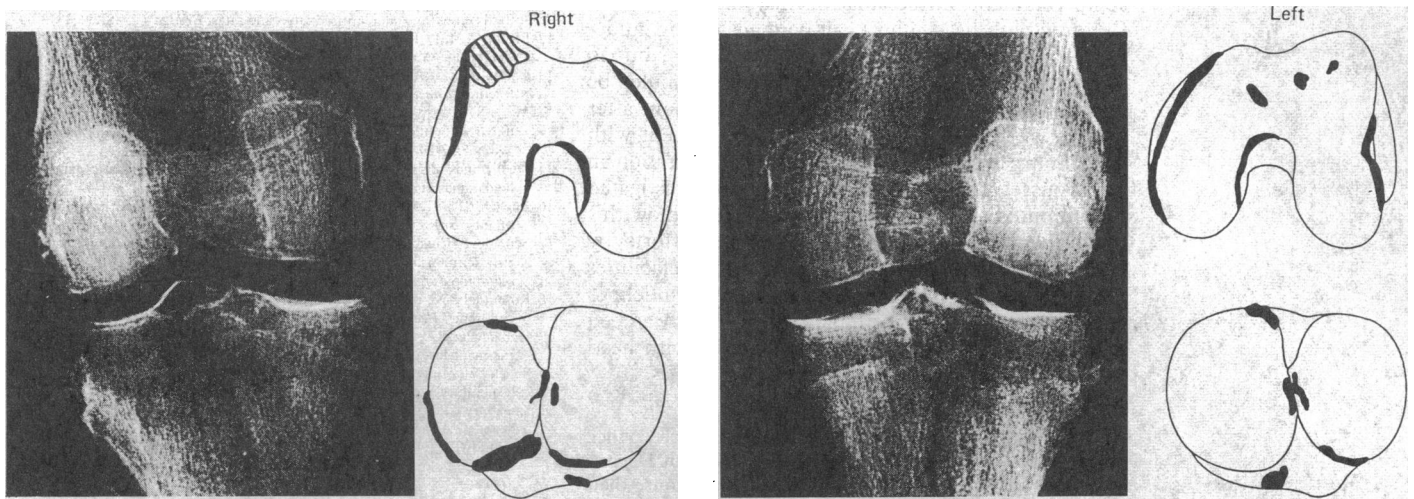
We selected 24 knee joints from 14 skeletons with a range of changes induced by osteoarthritis (normal to severe). The joints were assessed visually by a palaeopathologist (JR), who graded any osteophytes, eburnation, pitting, and alteration of bony contour as 1 (mild), 2 (moderate), or 3 (severe). Charts were drawn to show the extent and distribution of the changes, and the bones were photographed. The bones were then

aligned in the anatomical position, and an antero-posterior radiograph was taken (the joint space, obviously artificial, was not included in the assessment). The x ray films were examined by a radiologist (IW), who was unaware of the visual findings. Any osteophytes and other changes caused by osteoarthritis were graded as above. The visual and radiographic assessments were then compared (figure).

Eight of the 24 knee joints were normal by both techniques. Changes were noted on visual assessment in 16 but radiographically in only two. Osteophytes alone were detected visually in 11 knees (seven grade 1, three grade 2, and one grade 3), but only one of these knees was abnormal on radiography. Severe osteophytosis with other bony changes was seen in five knees, two of which had severe eburnation on the articular surface; one of these joints showed evidence of osteoarthritis on radiography.

Comment

We chose to study the knee joint because it is the commonest site for osteoarthritis and because we could obtain x ray films of the disarticulated bones in the anatomical position fairly easily. We could not obtain satisfactory lateral x ray films because of difficulties with alignment, so the study compared visual inspection of all aspects of the tibia and femur with a single anteroposterior radiograph. The comparison, however, was acceptable: palaeopathologists rely on looking at the whole area of the joint, whereas clinicians use an anteroposterior radiograph as their main aid to diagnosing osteoarthritis. The discrepancy between visual



Comparison of radiograph and visual assessment of one pair of knee joints, showing extensive eburnation (hatched area) and severe osteophytosis (solid lines). Radiograph appears normal

and x ray findings was striking. Severe osteophytosis and eburnation were often not visible in x ray films even when these were re-examined with hindsight.

The frequency with which osteoarthritis is reported in archaeological material and current figures for the prevalence of the disease³ are often compared. The different sensitivity of the methods used to make a diagnosis, shown by this study, and the fact that palaeopathologists often equate osteophytosis with osteoarthritis⁴ make such a comparison misleading. In our study 11 of 24 knee joints had osteophytes alone and a further five had other visual changes compatible with osteoarthritis. Thus the prevalence of osteoarthritis could have been reported as 67% or 21% depending on the diagnostic criterion used. Only two of the 24 knee joints were abnormal on radiography, one of which was thought to have changes due to osteoarthritis (4%). Large osteophytes and areas of eburnation, particularly if on the patella groove of the femur or the anteroposterior aspects of the tibio-

femoral joint, were often invisible in the radiograph. This suggests that radiography is a poor method of detecting osteoarthritis. It may also partly explain the discrepancy between changes seen in radiographs and symptoms found in epidemiological studies and the difficulties of developing diagnostic criteria for osteoarthritis of the knee.⁵ Areas of osteophytosis or focal osteoarthritis may cause symptoms or functional problems but remain invisible to clinicians or radiologists.

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Effect of non-steroidal anti-inflammatory drugs on dyspeptic symptoms

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The association of non-steroidal anti-inflammatory drugs with the lifethreatening complications of peptic ulceration is well documented.¹ Elderly patients with peptic ulceration are less likely to complain of dyspepsia if they are using these drugs.² As dyspeptic symptoms are a major indication for gastroscopy we investigated whether their diagnostic importance may be altered in patients taking non-steroidal anti-inflammatory drugs, which could lead to delay in the diagnosis of peptic ulceration.

Patients, methods, and results

We studied 149 consecutive patients with dyspepsia referred to an open access endoscopy clinic by rheumatologists (22%) and general practitioners. Before endoscopy patients were interviewed with a structured questionnaire about their symptoms and use of non-steroidal anti-inflammatory drugs. Dyspepsia was broadly defined as pain, discomfort, or burning in the middle or upper part of the stomach or the lower chest, and patients who had angina were excluded. Statistical

analysis was by the χ^2 test with Yates's correction. The ratio of the prevalence of a symptom in patients with ulcers to the prevalence in those without ulcers was used to indicate the diagnostic importance of the symptom (table).

Fifty patients had taken non-steroidal anti-inflammatory drugs regularly during the month before endoscopy. Forty eight patients had peptic ulcers (seven oesophageal, 18 gastric, 21 duodenal, and two gastric and duodenal). Among the patients who had not taken non-steroidal anti-inflammatory drugs pain that woke them at night was significantly more common in those with ulcers (67% v 29%, $p=0.003$), whereas among those who took non-steroidal anti-inflammatory drugs this symptom was less common in those with ulcers (38% v 46%); the difference between the two groups with ulcers was also significant ($p=0.041$). Localised epigastric pain was not significantly associated with ulceration in those who had not used non-steroidal anti-inflammatory drugs (30% v 20%) but showed a significant negative association with peptic ulcer in the group who had used these drugs (14% v 58%, $p=0.004$). Among the patients without ulceration localised epigastric pain was significantly more common in those taking non-steroidal anti-inflammatory drugs (58% v 20%, $p=0.004$). Considerable differences in the diagnostic implications of other symptoms were seen. In particular, pain occurring before meals or when the patient was hungry and loss of ≥ 3 kg in weight during the past six months showed a positive association with ulcers in those who had not taken non-steroidal anti-inflammatory drugs but a